

**AMENDMENTS TO THE CLAIMS**

1. (Currently Amended) A correlated double sampling pixel gain amplifier circuit comprising:

an input and an output; an amplifier having an input and an output;

an input capacitor onto which input capacitor charge from an input pixel is sampled during a first of first and second time phases, wherein the input capacitor is functionally coupled to the input of the amplifier and to the input of the pixel gain amplifier circuit during the first and second time phases; and

a feedback capacitor, coupled between the input and the output of the amplifier, that samples a reference voltage during the first time phase and receives charge from the input capacitor during the second time phase.

2. (Original) The pixel gain amplifier circuit as claimed in claim 1 wherein the input capacitor includes a variable capacitor.

3. (Cancelled)

4. (Previously presented) The pixel gain amplifier circuit of claim 2 wherein a capacitance of the input capacitor changes at a rate corresponding to a rate at which pixels are input into the circuit.

5. (Original) The pixel gain amplifier circuit as claimed in claim 1 wherein the feedback capacitor includes a variable capacitor.

6. (Original) The pixel gain amplifier circuit as claimed in claim 5 wherein the feedback capacitor comprises a capacitor array.

7. (Original) The pixel gain amplifier circuit of claims 5 or 6 wherein a capacitance of the feedback capacitor changes at a rate corresponding to a rate at which pixels are input into the circuit.

8. (Original) The pixel gain amplifier circuit as claimed in claim 1 further comprising an offset correction circuit.

9. (Cancelled)

10. (Currently Amended) A correlated double sampling pixel gain amplifier circuit comprising:

an input and an output;

an amplifier having an input, an output and a gain; and

means for varying the gain of the amplifier from a first gain for a first pixel to a second gain for a second pixel, wherein the first and second gains are determined, at least in part, by an input capacitor and a feedback capacitor;

wherein the input capacitor is always functionally coupled to the input of the amplifier and to the input of the pixel gain amplifier circuit.

11. (Original) The pixel gain amplifier circuit according to claim 10 wherein the means for varying the gain of the amplifier includes a capacitor array.

12. (Previously presented) The pixel gain amplifier circuit according to claim 10 wherein the means for varying the gain of the amplifier comprises means for varying the gain of the amplifier at a rate corresponding to a rate at which pixels are input into the circuit.

13. (Previously presented) The pixel gain amplifier circuit of claim 8, wherein an input of the offset correction circuit is coupled to the output of the amplifier and an output of the offset correction circuit is coupled to the input of the amplifier.

14. (Previously presented) The pixel gain amplifier circuit of claim 10, wherein the input capacitor is a variable capacitor.

15. (Previously presented) The pixel gain amplifier circuit of claim 10, wherein the feedback capacitor is a variable capacitor.

16. (Previously presented) The pixel gain amplifier circuit of claim 10, further comprising an offset correction circuit, wherein an input of the offset correction circuit is coupled to the output of the amplifier and an output of the offset correction circuit is coupled to the input of the amplifier.

17. (Previously presented) The pixel gain amplifier circuit of claim 1, wherein the input capacitor and the feedback capacitor at least partially determine a gain of the circuit, and wherein said gain is variable.

18. (Previously presented) The pixel gain amplifier circuit of claim 17, further comprising means for changing said gain at the pixel rate.

19. (Previously presented) The pixel gain amplifier circuit of claim 1, wherein the charge sampled onto the input capacitor comprises charge corresponding to pixel data and charge corresponding to reset noise.